

(43) Date of publication of application: **19.01.83**

(21) Application number: **56107656**

(22) Date of filing: 10.07.81

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**(54) ANALOG-TO-DIGITAL CONVERTER**

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(57) Abstract:

**PURPOSE:** To obtain an accurate output with a small number of comparators, by comparing an analog input with each set of plural resistors to obtain high-order bits and at the same time obtaining low-order bits through comparison among the selected sets of registers.

**CONSTITUTION:** The analog input voltage  $V_{in}$  is supplied to the voltage comparators  $M_1@M_3$  for high-order bits as well as to the voltage comparators  $N_1@N_3$  for low-order bits. The (m) sets of (n) units of resistors  $R_1@R_{16}$  having an equal level of resistance value are connected in series between a reference voltage source  $V_r$  and the earth, and the joint between the sets is connected to the input terminal of each of the comparators  $M_1@M_3$ . When the voltage  $V_{in}$  is equal to the voltage at a point (1), only  $P_1$  of the output P of the comparator  $M_1$  is set at 1. Then only FETs  $Q_{21}@Q_{23}$  which are provided between the joints of the resistors  $R_5@R_8$  and the comparator  $N_1$  are turned on, and only the output  $Q_1$  of the comparator  $N_1$  is set at 0.

